

# PHILADELPHIA MEDICAL TIMES.

PHILADELPHIA, MARCH 13, 1880.

## ORIGINAL COMMUNICATIONS.

### CASTS OF THE URINIFEROUS TUBULES—THEIR NATURE AND CLINICAL SIGNIFICANCE.

*A Paper read before the Philadelphia County Medical Society, January 14, 1880.*

BY JAMES TYSON, M.D.,

Professor of General Pathology and Morbid Anatomy in the University of Pennsylvania.

A SO-CALLED urinary cast or "tube cast" is a mould of a uriniferous tubule. To this all are agreed. But beyond this, opinions differ not a little as to its exact mode of origin, composition, and significance. I retain the term "cast," in common with most English physicians, in preference to that of "cylinder," because it conveys the idea of what is meant with sufficient precision while it implies nothing more. The adjective "fibrinous" I also discard as conveying an erroneous impression as to the composition of many tube casts, although some of them are fibrinous.

Casts may be studied as a sediment in the urine or *in situ* in the uriniferous tubules where they are formed. They are characterized by differences in appearance and structure, as the result of which they are variously named. Thus, there are hyaline casts, epithelial casts, blood casts, oil casts, waxy casts, and granular casts. Of the latter there are two subdivisions,—the *pale*, or moderately granular, and the *dark* granular casts. As to the material of which they are composed, different views are held. I will first present my own, because it will enable me at the same time and in the briefest manner to describe the several varieties.

In the first place, all casts are not of the same composition. Thus, what are known as *blood casts* are made up of coagulated fibrin and blood-corpuscles, the latter being entangled in the coagulum precisely as they are in a clot formed out of the body. The blood, through transudation or because of rupture of the capillaries of the Malpighian tuft, trickles down into the tubule, where it coagulates, forming a mould of the tube, and, after contraction, slips out into the pelvis of the kidney, whence it passes by the usual channel into the bladder.

Second, the term *epithelial cast* is ap-

plied to any cast to which are attached epithelial cells, be they few or many. In the latter case the entire mould is often made up of closely-packed desquamated cells, which may be cemented by their own adhesive properties or by a small quantity of fibrin, the result of simultaneously effused blood, for blood casts and epithelial casts constantly accompany each other. When the epithelial cells and their fragments—often their nuclei only—are few, they are separated by intervals, at times quite regular, of a hyaline material, to which they may be attached or in which they may be imbedded. And it is the nature of this hyaline material which is the subject of dispute. To me it seems most rational to consider it an exudation from the blood of an albumen or albuminoid substance, which coagulates after entrance into the tubules, entangling there, as does fibrin, whatever substances may be in the tubule, and occluding it for the time being. That it is true fibrin coagulated is not consistent with the modern doctrines of fibrin formation. For this fibrinogen and fibrinoplastin are essential. The former is furnished by the blood-plasma, the latter by the blood-corpuscles, and in the absence of the latter no coagulation can take place. Where there is hemorrhage into the tubules, both conditions of coagulation are present and blood casts are formed. Finally, the chemical properties of casts have been thoroughly investigated, first by Axel Key, and later by Rovida, who have shown them to be altogether different from those of fibrin. On the other hand, that the hyaline material is some sort of exudate rather than a result of a metamorphosis of cells is sustained by the fact that the hyaline is the only shape of cast formed in the slightest derangements of the kidney, as when there is a mere transitory congestion of the organ, active or passive, and where there is no alteration of the epithelium whatever. The same objection holds to their being a product of secretion.

Third, the two forms of *granular cast* have probably different modes of origin. In the case of the *dark granular cast* the cells have undergone complete disintegration, and the products of this form a closely-packed, dark, granular mass. If many red blood-disks happen to be in the tubule and share the breaking up, a yel-

lowish tinge is communicated to this form of cast. In other instances the granular matter is less abundant, and a *pale* granular cast is the result. The granules here are less easily accounted for. They may result from a similar disintegration of cells fewer in number, or they may be due to a precipitation of granules from the albuminous substance of the hyaline cast, similar to that which occurs in the so-called cloudy swelling of cells. They would then be the result of the further metamorphosis of a hyaline cast.

Fourth, the *oil cast* is a like product. Here the cells have undergone a fatty degeneration, some having completely broken up into fatty globules, others retaining their continuity and shape, forming compound granule-cells and other forms of fatty cells. The oil-drops and fatty cells are seldom so abundant that they form a closely-packed mass constituting the cast, but they are more or less separated by the hyaline basis referred to. Fatty casts in urine are apt to be accompanied by free oil-drops and free fatty cells.

Fifth, *hyaline casts* are the simplest form of cast. They are delicate, structureless, or almost so, and composed of the transparent substance already referred to. They are of different widths, even when produced in the same tube, according as it is bereft of its epithelium or as the latter remains adherent. In the former case a hyaline cast of "large" diameter is produced, in the latter, one of "small" diameter. The range of width thus produced is from .025 to .05 mm. ( $\frac{1}{1000}$  to  $\frac{1}{50}$  of an inch). Hyaline casts are sometimes so delicate and transparent as to be scarcely visible, and require care in illuminating the field of view of the microscope to bring them out distinctly. They are also often characterized by peculiar indentations or partial fractures. Hyaline casts occur in all forms of renal disease.

Sixth, *waxy casts* are also hyaline, but more solid and glistening in appearance, more highly refracting, and apt to present a yellowish tinge. From their supposed resemblance to molten wax, they have been called "waxy;" but they bear no essential relation to the so-called "waxy" or lardaceous or amyloid kidney, by all of which terms it is known. The material of which they are composed has, at least, different refracting properties from that of the ordinary hyaline cast, and probably origi-

nates differently. It will be seen presently that it is this form of cast with regard to which there is most unanimity in ascribing it to a fusion and hyaline transformation of desquamated epithelium, or of other cells within the tubules. The objections which lie in the way of admitting such an origin of the simple hyaline casts do not exist here, and it is not unlikely that they thus arise. It should be clearly understood, however, that the transformation is not the so-called waxy or amyloid transformation, the presence of which in the blood-vessels, tubules, and cells of the kidney constitutes the form of kidney disease known under that name. For these waxy casts do not, as a rule, strike the iodine reaction of the amyloid change. That they do occasionally is attested by two instances referred to by Bartels,\* and others have reported instances. I have many times carefully and systematically tested them, without ever having obtained the reaction. Bartels suggests that the age of the material forming the cast may have something to do with the transformation into true amyloid material. And Rindfleisch† also says that he is convinced that casts which are long retained in the urinary tubules, especially in the bends of the looped tubes, undergo a glassy swelling, and assume the micro-chemical characters of amyloid substance, striking the iodine reaction, and that, too, in kidneys which are not otherwise amyloid. That they are not always the altered epithelium of the tubes is evident, for the reason assigned by Rindfleisch: in the first place the epithelium is seen well preserved between the casts and the basement membrane, and in the second, it is only in the highest degrees of the amyloid degeneration of the kidney that the cells are involved.

Again, waxy casts are found in all forms of chronic renal disease, it is asserted by some in chronic interstitial nephritis more frequently than in the amyloid form.

#### VIEWS OF DIFFERENT OBSERVERS AS TO THE NATURE AND FORMATION OF CASTS.

Dr. A. Burkhardt, in a successful prize essay‡ presented to the medical faculty of Tübingen, in 1871, furnishes an interest-

\* Bartels, in Ziemssen's Cyclopædia of Medicine, vol. xv. p. 90.

† Rindfleisch, Patholog. Histol., New Syd. Soc. Trans., vol. ii., 1872, p. 144. Fifth German edition, 1878, p. 443.

‡ Burkhardt, A., Die Harnzylinder mit besonderer Berücksichtigung ihrer diagnostischen Bedeutung. Gekrönte Preis-schrift. Mit einer Tafel. Berlin, 1874.

ing historical sketch of the study of casts, from the time of their discovery to the date of his essay. Although Simon is the reputed discoverer of casts, several observers had previously published descriptions of objects found in urine, which were evidently casts. The first of these was Vigla, who, in a paper on the microscopic constituents of urine, published in a journal called *L'Expérience*, in 1837, spoke of "finely granular longish albuminous plates." He gave no further description, and did not state in what kind of urine they were found. In 1838, Donné, in the same journal, denied the occurrence of these albuminous plates. To this Vigla replied that he had observed them in the urine of Bright's disease. In the same year, 1838, Rayer, in his treatise on diseases of the kidneys, described certain membranous, irregularly-shaped, finely granular, white or yellow lamellæ as occurring in albuminous urine, but said nothing of their composition. The first unmistakable description of these bodies was given by Nasse, of Marburg, in a notice published in *Schmid's Jahrbuch*, in 1838, of Donné's plates of urinary sediments, and more clearly in a paper by him on the microscopical constituents of the urine in Bright's disease, published in 1843.\* Simon first described casts as constituents of urine in Bright's disease in his work on practical chemistry, in 1842.

Henle was the first to study casts *in situ* after he had previously examined them in the urine of a case of Bright's disease. This he did in 1844,† and then asserted their *fibrinous* composition, whence the term "fibrinous" cast still in use. From this time forward numerous communications appeared, and by 1845 the presence of casts in the urine of Bright's disease was an acknowledged fact.‡ In this year Scherer published Heller's theory, according to which casts were the result of congestion and exudation of liquor sanguinis.

To pass to more modern observers, Traube also held that casts are composed of fibrin, which is caused to exude by a high degree of intravascular pressure.

At the present day Dr. George Johnson§

says the "basis of all renal tube casts is fibrin within the uriniferous tubules; but these casts assume various appearances, according to the nature of the products which they contain and the condition of the tubes in which they have been moulded."

Dr. Beale|| says, "the transparent material probably consists of a peculiar modification of an albuminous matter possessing somewhat the same characters as the walls of some epithelial cells, the elastic laminae of the cornea, etc., but not condensed like these structures." This, according to him, is the basis substance, which, becoming solid, entangles epithelial cells, nuclei, granular matter, blood-corpuscles, or whatever may be in the tube at the time the effusion occurs; or which solidifies in the shape of a hyaline cast, if the tube be empty, or the epithelium so firmly adherent that the cast slips out without detaching it.

Dr. Dickinson¶ believes that, as a rule, fibrin forms the basis of all casts, but says, "it sometimes happens that cylinders are formed in the urine, which appear to consist entirely of compacted epithelial cells, or of epithelial cells held together by fibrin so small in amount as to be barely perceptible."

Dr. Grainger Stewart\*\* says tube-casts are composed of coagulated fibrin with altered epithelium and not unfrequently blood-corpuscles. Weissgerber and Perl†† are among the most recent who adhere to the view that casts are formed of exuded fibrin, while Robin, as early as 1855, protested against the use of the term "fibrinous" cast, as being erroneous.

Axel Key,†† having shown that the chemical characters of casts were incompatible with a fibrinous composition, early claimed that at least the so-called "hyalin gelatinous" and "hyalin waxy" casts are composed of desquamated epithelium which has fused and degenerated into a hyaline mass, and that dark granular casts are also formed by an agglomeration of degenerated epithelial cells. O. Bayer§§ asserted

|| Beale, *Kidney Diseases and Urinary Deposits*. Philadelphia, 1869. P. 339.

¶ Dickinson, *W. Howship, On the Pathology and Treatment of Albuminuria*. Second edition, London, 1877. P. 19.

\*\* Stewart, *Grainger, Bright's Disease*. Second edition, New York, 1871. P. 80.

†† Weissgerber and Perl, *Archiv für experiment. Pathologie*, Bd. vi., 1876.

‡ Axel Key, *Om de k. Tubularafgjutningarnas olika former och bildning vid sjukdomar*. *Njuarne. Med. Archiv*, i., 1-29. Stockholm, 1863. *Schmid's Jahrbuch*, 1862.

§§ O. Bayer, *Über den Ursprung der sogenannt. Fibrincylinder des Urins*, *Archiv für Heilkunde*, 1868, S. 136.

\* Nasse, *Medizinischen Correspondenzblatt rheinischer und westfälischer Aerzte*, No. 8, S. 121, 1843.

† Henle, in Henle's *Pfeuer's Archiv*, Band i., Heft i., S. 60, 1844. Henle, in *Zeitschrift für rationelle Medizin*, Bd. i., S. 68.

‡ See the work of Burkhardt alluded to for a full historical sketch, more particularly of German authors.

§ Johnson, *Lectures on Bright's Disease*. New York, 1874.

that all varieties of casts originate in this melting together and transformation of cells. Schachowa,\* in some experiments upon the artificial production of nephritis in dogs, by means of cantharides, obtained results which sustained the same conclusions. On the other hand, Edmansson† claimed that all casts originate as a secretion from the epithelial cells lining the tubules, and Ertels‡ defends the same view.

Langhans, in a recent article,§ says that while many casts arise from a metamorphosis of cells contained in the uriniferous tubules, he is far from claiming that all casts originate in this manner. It is especially the waxy casts that are thus formed, while the pale homogeneous cylinders are a kind of secretion from the epithelium. According to Langhans, the cells which undergo conversion into waxy casts may be either the desquamated epithelium of the tubules, lymph-corpuscles, or red blood-disks. In either event, first melting into one another, they break up into a finely-granular mass, which subsequently undergoes a glass-like transformation. This begins at the periphery, and extends thence towards the centre. A yellowish tinge and more highly-refracting character result when the cells thus converted are red blood-disks.

Rovida,|| whose observations on the nature of casts have been alluded to, makes but three varieties of casts,—the colorless, the yellow hyaline, and the epithelial, of which he considers the colorless and the yellow hyaline a secretion from epithelial cells.

Bartels¶ admits three modes of origin for casts. First, that dark granular casts originate directly by an agglomeration of degenerated epithelial cells, by which agglomeration I infer also he forms epithelial casts, although he makes no direct statement to that effect. He insists, also, that in every case in which he has examined microscopically thin sections of dis-

eased kidneys whose tubules were blocked by the dark granular casts, the tubules invariably exhibited an epithelial lining. He admits, however, that the theory of Key and Bayer, that the epithelium thus shed is rapidly reproduced, may be correct. Secondly, that the yellow (waxy) casts arise as a species of secretion from the epithelium. Third, Bartels holds that certain "homogeneous, transparent, lightly-streaked or faintly-shaded varieties, or the forms which are so delicately stippled with the finest granules or minute oil-drops, in a word, the casts which are most rightly called hyaline, are formed by a coagulation of the albumen and its derivatives secreted with the urine." Their occurrence he considers entirely dependent upon the albumen mixed with the urine.

Rindfleisch\*\* thinks the matter is not yet ripe for decision. He says that he has long favored the view that the epithelial cells of the straight tubes furnish a solidifiable colloid material in their protoplasm, which they pour out into the lumen of the tubules, and he gives a drawing in his work on Pathological Histology, which he believes lends support to this view.

At the same time he says he is forced to admit, with Klebs, that this may be a post-mortem product, or the result of a method of preparation; also, that casts may be the result of a liquefaction and fusion of red blood-corpuscles; and finally, that for the present the matter must rest with the statement that a fluid, albuminous substance is poured out into the lumen of the tubule, which coagulates, and that thereby the fibrin cylinder is formed. In the next paragraph, however, under "amyloid infiltration," he says that in advanced stages of this condition, when alone the epithelium becomes involved, casts may be formed by the fusion of the infiltrated cells.

Charcot†† is not at all explicit, but denies that they are fibrinous, and considers that some (certain granular casts) are made up of broken-down epithelial cells, others (hyaline and some granular) of an albuminous substance, while epithelial casts are agglomerations of epithelial cells more or less altered.

\* Schachowa, *Untersuchungen über die Niere*. Dissert., Bern, 1876.

† Edmansson, quoted by Bartels, *op. citat.*, p. 84.

‡ Ertels, *Experimentelle Untersuchungen über Diphtherie*, Deutsches Archiv für Klin. Med., Bd. viii., S. 292.

§ Langhans, Theodor, *Ueber die Veränderungen der Glomeruli bei der Nephritis nebst einigen Bemerkungen über die Entstehung der Fibrincylinder*, Virchow's Archiv, Bd. 76, erstes Heft, 1879, 85.

|| Rovida, *Ueber das Wesen der Harnycylinder*, Moleschott's *Untersuchungen zur Naturlehre des Menschen und der Thiere*, Bd. xi., S. 1.

¶ Bartels, *op. citat.*, 84, 85, 86.

\*\* Rindfleisch, *Pathological Histology*, New Syd. Soc. Trans., vol. ii., 1873, pp. 144. Fifth German edition, 1878, 442, 443.

†† Charcot, *On Bright's Disease*, translated by Millard. New York, 1878. P. 29, *et seq.*

## THE PART OF THE URINIFEROUS TUBULE IN WHICH CASTS ARE FORMED.

Casts may be formed in all parts of the tubules of the kidney, but it is commonly asserted that most of those found in the urine come from the looped tube of Henle and the collecting-tubes, because from these escape is easier than from the convoluted tubules; not, however, easier than from the *intermediary* or *intercalary* portion, in which each ascending limb terminates before it empties into a collecting-tube. This part of the tubule is identical in structure with the convoluted portion. Rindfleisch says that casts are formed only exceptionally in the convoluted tubules, and that when found *in situ* in the cortex of the kidney it is in this intermediary piece of Schweigger-Seidel, and not in the convoluted portion, that they usually lie. While there are difficulties in the descent of a cast from the cortex of the kidney, and while such descent is doubtless more rare, I do not consider it impossible. The cast is smooth, flexible, and may contract its dimensions very considerably. Under these circumstances the very considerable *vis a tergo* of the newly-secreted urine may be sufficient to force it downwards along the loop of Henle and through the intermediary piece into the collecting-tube. It is scarcely necessary to say that a blocking up of the convoluted tubules by casts is a very much more serious matter than of other portions, and that if it were of frequent occurrence a large proportion of cases of Bright's disease would be immediately fatal.

## THE SIGNIFICANCE OF CASTS FOUND IN URINE.

It is said that hyaline casts are found in urine from healthy kidneys,\* and that epithelial casts are found as a result of the administration of diuretics;† but while I have found, in a very few instances, casts in urine in which there was at the same time no albumen, and rather more frequently albumen in urine without casts, I have never found true casts in urine from what I considered normal kidneys. In cases of irritation of the bladder, ureters, and pelvis of the kidney, there occur what, following Dr. Beale, I call *mucus casts*, very long, delicate, hyaline, faintly striated,

often branching casts. They are evidently formed in the largest collecting and excretory tubes, and are probably mucus. They are due to irritation, propagated from irritated mucous surfaces. Sometimes their resemblance to casts is even closer, in consequence of precipitation upon them of granular urates or amorphous phosphate of lime. But this granular deposit, when present, encrusts everything which may be in the urine, epithelial cells, foreign matter, etc., besides forming a copious precipitate of its own.

It is not very unusual to find cases in which there have been albuminuria and casts, where, as improvement progresses, the albuminuria disappears and casts are found in the urine for some time longer. I have observed this in one or two hospital cases, and I suppose, if watched for, more frequent instances would be found. My friend Dr. Milner, of Chester, Pennsylvania, having had his attention called to the subject by a publication of my own, in which it was stated that during recovery from acute Bright's disease casts might be found in the urine some time after albumen had disappeared, examined carefully the urine of a child recovering from scarlatinal nephritis, and found casts for two weeks after albumen had disappeared. Such cases require no further comment. Bartels correctly says, "The formation and the excretion of a cast need be by no means contemporaneous events."

An adult woman, on admission to the Pennsylvania Hospital, exhibited a slight puffiness and pallor of countenance, which suggested an examination of her urine. No albumen was found by the physicians at the hospital, but a considerable number of slightly granular and hyaline casts. Dr. James H. Hutchinson sent me a specimen of the urine, and by no test could I discover the presence of albumen, but found delicate granular and hyaline casts. *One week later* a searching examination of the urine of the same patient revealed *neither casts nor albumen*. This last observation settled the question. The case had been one of Bright's disease which was convalescent. Finally, A. Henderson reports for Osler, in the *Canada Medical and Surgical Journal*, Montreal, 1879, vol. vii., a case of persistence of casts and blood-corpuscles in urine after albumen had disappeared. Now, if we add cases of contracted kidney, in which occasionally for a time

\* See Charcot, *On Bright's Disease*, New York, 1878. Charcot says this was first pointed out by M. Robin in 1855, and confirmed by Axel Key, Rosenstein, and many others.

† Ibid.

either casts or albumen may be wanting, this category is complete.

On the other hand, occasional instances of true renal albuminuria, and large albuminuria without heart disease, are sometimes met in which casts are absent. But even here, if the opportunity for repeated examinations is present, there comes a time when a few casts will be found, and later an examination may fail to discover them. Such a case of supposed amyloid disease of the kidney I have now under observation, fully noted. I have notes of one other case of copious albuminuria, in which three careful examinations failed to discover casts, and the patient subsequently died; but no post-mortem examination was made. My own relation to the case was confined to the urine examination. It may have been one of heart disease, although even in albuminuria from heart disease my experience goes to show that where albumen is abundant casts are generally present. Finally, I am confident that there are many instances of albuminuria, where the absence of casts is reported, in which the examination is at fault, being carelessly performed.

From these remarks it may be inferred that I attach no small significance to the presence of casts in the urine. Although I have never seen casts in the urine from healthy kidneys, I will not deny the possibility of its occasional occurrence. But when we remember that urine is seldom investigated with the microscope, unless we are searching for the cause of an evident or suspected ill health, we may lay it down as a rule, to which exceptions are so rare that they may be ignored, that when casts of the uriniferous tubes are found in a specimen of urine, the kidneys whence they come are not in a normal state. That state may be temporary, but if so the casts pass away with it, while if it is permanent, the casts continue during its existence. The doubtful cases are, of course, those unaccompanied by albuminuria. I presume no one will claim that the kidneys which shed both casts and albuminuric urine are healthy. Cases of the former category require, of course, to be studied, and the issue will always clear itself. I cannot comprehend the position taken by Charcot in his recent work, where, in addition to saying that, "in a general way, the clinical importance of urinary casts has been very much exaggerated," he also says of epi-

thelial casts, "it may be said that, from a clinical point of view, they do not possess much importance;" and of hyaline casts, "even when renal disease exists, the hyaline casts are of no interest, except from their long persistence."

When we come to ask the question, whether by the kind of casts present we can diagnose the nature of the renal malady, a less positive reply can be given; but, nevertheless, some of the varieties give us considerable assistance in making a diagnosis. The following general statements may be made:

1. Hyaline casts are found in all forms of Bright's disease, as well as in temporary congestions of the kidney, active or passive.

2. Epithelial casts are found in acute, subacute, and chronic parenchymatous nephritis. In the latter two forms the cells are generally degenerated and fragmentary.

3. Blood casts are found in acute parenchymatous nephritis, and where hemorrhages have occurred in the kidneys.

4. Pale granular casts are found in interstitial nephritis (contracted kidney) and chronic parenchymatous nephritis.

5. Dark granular casts are found in parenchymatous nephritis, acute and chronic, and rarely in interstitial nephritis.

6. Waxy casts are found only in chronic Bright's disease, and attend either of the three principal forms.

7. Oil casts are found in subacute and chronic forms of Bright's disease, and may attend any of the three principal forms, but are most numerous in chronic parenchymatous nephritis (fatty kidney).

8. Free fatty cells and free oil-drops are found in chronic parenchymatous nephritis.

9. The form of fatty cell known as the compound granular cell is found in acute and chronic parenchymatous nephritis.

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CONSOLATION FOR THE PREMATURELY BALD.—Prof. Fournier, in a lecture on alopecia, says of baldness, "There is nothing ridiculous or malformed about it, and it confers upon the physiognomy an expression of wisdom, experience, and venerability. It adapts itself marvellously to certain heads which would be deformed by a wig, and is the severe beauty represented in sculpture by the classic head of Æschylus."

## AN ILLUSTRATION OF THE NECESSITY OF ACCURATE DIAGNOSIS.

BY WM. R. D. BLACKWOOD, M.D.

Read before the Philadelphia County Medical Society,  
January 14, 1880.

DURING a visit to one of my families last summer, I was asked to see a young lady temporarily living in their residence. She was stated to be an intense sufferer from supposed neuralgia, which affected mainly the lumbar spine, with extension to the perineum, the hypogastric region, and along the inner aspect of the thighs, with frequent nervous invasions of more distant localities. Her malady was invariably intensified during defecation, usually during urination, and occasionally whilst menstruating. It made her a burden to herself and a trouble to her parents, whose circumstances were seriously straitened by the expense incurred in apparently unavailing effort towards her relief or cure. Her disability ensued closely after a fall down-stairs, during the abrupt descent of which she fractured her left radius and contused her back. In the rural home the usual family attendant was a man popularly (from what I learn) good for lyings-in, but not for much else, and he lost little time before seeking the aid of a *confrère* famed also in the neighborhood as a bone-doctor, especially in the veterinary line, but backward in routine family practice. Between them they "set" the radius, the utility of which performance remains evident, as tested by pronation and supination, to this day. In course of time union took place, meanwhile the neural disturbance assuming a more pronounced character. As detailed by the patient, the treatment seems at first to have been of a general do-nothing nature aside from the arm lesion, but, that mended, the surgical attendant, seeing that no relief ensued, bethought him of more radical procedure, and, selecting the anus as the focus of her ill health, at once detected a *fissure*, for which forcible distention was practised, though from description I presume, happily for her, not very thoroughly. Succeeding this, *ulcer* was attacked by caustic applications, and *spasm* by suppositories. After three months of to-and-fro diagnosis, the lady was urged to see a gentleman of considerable repute in an adjoining Western city, who, repudiating all that had been done, declared the entire phenomena to be resultant from

ovarian hyperæmia, and hysterical in type beyond contradiction; a statement not, however, at all concurred in by his country associates. For two months thereafter the young lady underwent a course of treatment precisely similar to that enjoyed by a Strasbourg goose, nailing to the floor before a hot fire only excepted. She was fed and gorged to repletion with food she liked and food she detested, and additionally galvanized, faradized, and massacred—I mean massaged—to his heart's content and to her heart's sorrow, to his benefit and to her injury, for, with suffering unrelieved, nervous tension abnormally heightened, digestive organs worried into stubborn inactivity from overwork, and a life of prospective invalidism before her, she was miserable indeed. Her parents gave up the fight, believing her case beyond relief, and for nearly two years thereafter she suffered more or less, relieved only by narcotics, to which, however, to her credit be it said, she did not become a slave, despite her malady. Her kind friends here urged her to visit them, if only for change of scene, and, succeeding, sent her home thoroughly restored to health, and that with two weeks' attendance only, and no drugging whatever.

The point aimed at in the relation of this case is the necessity, in any obscure problem, of thorough investigation and correct diagnosis before instituting treatment. The physician upon whose skill the greater reliance was, naturally through reputation, placed, contented himself with a now fashionable plan of treatment, and made an ignominious failure. He made no physical examination of the uterine system, and his course was therefore based upon a self-complacent assumption of superiority which future events proved that he did not possess. His therapeutic measures were quackery pure and simple under the circumstances. Massage in its sphere (which is limited) is an admirable remedy; electricity (with its wider applicability) is invaluable; diet is all-important,—and the phrase does not by any means imply low living, as popularly imagined. Either of them may, in properly selected cases, work wonders; but when prostituted by the physician, be he regular or an advertiser, and made mere money-getting agents, from the folly of the numerous class of make-believe invalids, whose lives are worthless to them-

selves through the possession of means which preclude the necessity of exertion, and who, in killing time, class their physician with the opera, the milliner, and the modiste, they are worse than useless, for they encourage, as does alcohol, chloral, or the morphia habit, idleness and duplicity in the patient, and lead honest and honorable practitioners to look with doubt or positive disfavor upon what, in their hands, might be the means of good to many.

The family attendant made no pretension to excellence, relied upon his neighboring associate, and cannot, therefore, be blamable. His *confrère*, though evidently not brilliant, was within an inch of the corrigenda by long measure towards the close of his service, but thousands of miles distant so far as any benefit could result through his performances.

The case resolved itself very simply upon an almost superficial investigation. No anal, uterine, or ovarian affection existed. The spine proper was intact, but the coccyx had been dislocated or fractured at the sacro-coccygeal junction, and, though it could be partially pressed backward towards its proper line, it had so long been drawn inward by the ischio-coccygeus muscle as to retain a "set" nearly as perfect as that illustrated in her unfortunate radius. Excision of the bone was recommended, and agreed to cheerfully. I experienced no difficulty in effecting it, and she was well in ten days.

246 NORTH TWENTIETH STREET.

#### A STUDY OF THE CATARRHAL CONDITIONS OF THE STOMACH, WITH ILLUSTRATIVE CASES.

BY LOUIS STARR, M.D.,

Physician to the Episcopal Hospital, Philadelphia.

(Continued from page 269.)

##### PRIMARY CATARRH.—THE CHRONIC FORM.

A CHRONIC catarrhal condition of the mucous membrane of the stomach probably exists, and is in reality the causal lesion of very many cases of dyspepsia which are regarded as merely functional derangements. Independently of the hyperæmia accompanying pulmonary phthisis and organic diseases of the stomach, and also of the secondary affections already referred to as depending upon obstruction of the portal circulation, chronic

gastric catarrh may originate in several ways.

It often follows repeated acute attacks, each repetition leaving the mucous membrane more susceptible to irritants; this is particularly apt to result when the subject is debilitated, or surrounded by bad hygienic influences. At other times it is slowly established by the use of unsuitable food, or by habitual over-indulgence in alcoholic stimulants. These latter causes often co-operate, and it is well to remember that food is unsuitable not only when of poor quality and badly cooked, but also when, though unexceptionable in these respects, its preparation for stomach digestion is slighted, either from absence of teeth or from too great haste at meals.

The histories of several patients recently under my care will serve to elucidate the etiology and clinical features of this form of catarrh.

*Case IV.*—John —, æt. 64, applied for treatment in June, 1879. He was a gardener by occupation; was inclined to occasional intemperance, and had always been accustomed to coarse food, being especially addicted to potatoes, tea, and pie. He stated that he had had more or less dyspepsia for fifteen years, but the distress had become greater in the past three or four years, since he had made enough money to enable him to live in idleness. His symptoms were impaired appetite; frequent eructations of flatus with small quantities of sour liquid and partially digested food; epigastric pain, increased by eating and relieved by eructation; constipation; occasional sensations of oppression in breathing, and palpitation, the last two symptoms invariably and promptly disappearing on the expulsion of flatus from the stomach. His tongue was heavily coated, his abdomen was distended, and there was some tenderness in the epigastrium, with extended gastric tympany. The pulse was 60 a minute; there were no signs of cardiac lesion.

A more appropriate diet, with some light occupation, was advised, and a mixture of tinct. nucis vomicæ, acid. muriatic. dil., and inf. quassiae, was ordered after each meal. He never returned, however, to report progress.

In the next case the tendency of what the patient was pleased to call "moderate drinking" to produce catarrh was probably enhanced by his occupation.

*Case V.*—John —, æt. 56, acknowledging to several drinks of spirits daily, was admitted to the medical ward of the Episcopal Hospital on October 28, 1879. He was a carpet-weaver by trade, and was in the habit, while at work, of bending over his loom, making

pressure on the epigastrum. His health had been good until 1875, when he began to be troubled with sensations of weight and pain in the epigastrum. Afterwards these symptoms steadily increased in severity.

On admission his general appearance was good, but he complained of pain in the upper third of the abdomen, and of flatulent distension after meals, which he was able to eat with moderate relish. His tongue was covered with a thick yellow coating, there was redness of the fauces, his breath was heavy, and there were frequent eructations of flatus, especially after eating. His bowels were moved daily. The abdomen presented no alteration, except epigastric distension and extended gastric tympany. There was no cough, the heart and lungs were healthy, and the urine was normal.

He was placed upon the ordinary "house diet," the upper third of the abdomen was painted with tincture of iodine, and a mixture of ten grains of bicarbonate of sodium and half a fluidounce of compound infusion of gentian was directed thrice daily.

On November 3 he became somewhat constipated, and was ordered, in addition to the alkaline mixture, the laxative pill of ipecacuanha, cinchonidia, and aloes and myrrh. This secured a daily evacuation of the bowels.

On November 8 the alkaline mixture was stopped, and the following prescription directed :

R Strychniae sulph., gr.  $\frac{1}{2}$ ;  
Cinchonidiae sulph., gr. xxiv;  
Acidi muriatici dil., f $\frac{1}{3}$ ii;  
Aqua $\ddot{\text{e}}$ , q. s. ad f $\frac{1}{3}$ vi.—M.

S. A tablespoonful to be taken, well diluted, after each meal.

On November 10 he felt well enough to return to work, and was discharged.

The cause in Case VI. seems to have been entirely one of occupation. The state of the tongue and mouth indicated a more irritable condition of the mucous membrane of the stomach than in the preceding cases.

*Case VI.*—George —, æt. 41, a night-watchman, of temperate habits, was admitted to the Episcopal Hospital on October 8, 1879. His sickness had begun three weeks before, with pain in the epigastrum and dyspeptic symptoms, and he attributed it to his night-work, which was principally in the damp cellar of a large dry-goods warehouse.

At the date of admission he was much reduced in strength. His tongue was lightly coated in the centre, and there were a number of small aphthous ulcers along its edges, and upon the inside of the cheeks. His appetite was poor; there were frequent eructations of flatus and acid liquid; the bowels were confined, and he had hemorrhoids which bled slightly after an evacuation. There was slight

tenderness over the right lobe of the liver; in other respects the abdomen was normal. His pulse was 80, lacking in force, and he sometimes had palpitation of the heart on exertion, but no cardiac lesion could be detected. The lungs also were healthy.

The patient was placed upon a diet of milk, with one-third lime-water, farinaceous preparations, and meat-broth. Ten grains of bicarbonate of sodium and half a fluidounce of compound infusion of gentian were ordered thrice daily, together with a mouth-wash of chlorate of potassium, an astringent ointment for the hemorrhoids, and an occasional enema to evacuate the rectum. Under this treatment he improved rapidly.

With the next patient the main cause was the want of teeth, although other conditions of her life assisted in the production of the gastric disorder.

*Case VII.*—A. C., spinster, æt. 54, a drawing-teacher and wax-flower maker, was admitted to the Hannah ward of the Episcopal Hospital on October 1, 1879. Her life had been anxious and laborious; she had only been able to earn enough money to provide herself with the bare necessities of existence, and during the past five years had not had a sufficient number of teeth to perform the act of mastication properly. In consequence she had been much troubled with dyspepsia, and her health had gradually failed until June, 1879, when she became so much worse that it was with the greatest difficulty that she kept at work.

When admitted, she was thin and weak; her skin was sallow and dry; she was nervous, often low-spirited; was languid and drowsy after meals; slept poorly at night; was troubled with cold hands and feet, and had frequent attacks of headache and giddiness. Her tongue was flaccid, clean, and smooth, as if deprived of epithelium, along the edges, and covered with thick white fur in the centre. She wore, for the sake of appearance, a very rude imitation of teeth, made by herself of wax, and when these were removed all that remained of the teeth were a few decaying roots. Her breath was heavy, the fauces were red and relaxed, the pharynx was covered with granulations, and she stated that early in the day she was in the habit of hawking up quantities of tenacious mucus. Her appetite was poor; when she ate she cut her meat into small pieces with scissors, reduced whatever other solid food she had to fragments as best she could artificially, and, the wax teeth being removed, bolted the whole with little attempt at mastication.

She complained of a sense of fulness and pain in the epigastrum, increased by taking food; there was a constant disagreeable taste in her mouth, and frequent eructations of flatus, acid liquid, and particles of undigested food, followed by very trifling alleviation of

the abdominal discomfort. Occasionally, on rising in the morning, she vomited a small quantity of yellow, very bitter mucus. The bowels were moderately regular. The abdomen was somewhat distended, particularly in the epigastric region, and in this position there was slight tenderness on palpation. Her pulse was weak, and under the excitement of the examination ran up to 96; the heart and lungs were healthy. The urine was passed freely, had a sp. gr. of 1.022, was alkaline in reaction, non-albuminous, and on standing deposited a moderately thick white sediment.

The patient was ordered a diet consisting of milk with lime-water (3-1), beef-tea, chicken-broth, and a limited quantity of bread, and farinaceous food cooked with milk. A small blister was applied to the epigastrium, a prescription containing sulphate of strychnia and dilute muriatic acid was directed three times a day, and the bowels regulated by an occasional pill of ipecacuanha, cinchonidia, and aloes and myrrh.

At the end of two weeks, as the improvement was rather slow, a pill of nitrate of silver, gr.  $\frac{1}{2}$ , and extract of taraxacum, gr. iii, thrice daily on an empty stomach, was substituted for the strychnia mixture. After the lapse of another fortnight the improvement was sufficient to warrant the omission of one of the nitrate of silver pills, and one week later they were discontinued, and a mixture of tincture of nux vomica,  $\mathcal{W}$  v, dilute nitro-muriatic acid,  $\mathcal{W}$  x, and infusion of quassia, enough to make f3ii, ordered after eating. At the end of November the silver pills were again given twice daily for two weeks, and then the acid mixture was resumed. Throughout the whole period of treatment the same diet was used, occasional blisters were applied below the xiphoid cartilage, and during the last two months ten grains of carbonate of ammonium were administered in milk before rising in the morning, with the effect of relieving the sick stomach and depression which were apt to be experienced at that time.

On December 8 she was strong enough to submit to the extraction of all that remained of the teeth, and on the 21st—her condition being vastly improved—she was discharged, with a warning as to the danger of a speedy relapse unless she obtained an efficient set of artificial teeth.

Together with the symptoms noted in these cases there are others of importance. Thus, when there is irritation of the gastric mucous membrane, thirst is increased, and there may be a sense of burning in the stomach, sometimes lessened by cold drinks, at other times by warm drinks. The flow of saliva is often excessive, especially during sleep, when it runs from the mouth upon the pillow. Flushes of heat, dryness of the palms of the hands and soles of the

feet, slight catarrhal affections of the air-passages, harshness of the skin and hair, and other evidences of impaired nutrition, are frequently observed.

The nervous system may be affected, as in Case VII., the condition at times amounting to marked hypochondriasis, as in the next instance.

*Case VIII.*—Elizabeth —, æt. 54, was admitted to the Episcopal Hospital on November 17, 1879. She had been living for a number of years on charity, and had been poorly housed and badly fed. She gave one year before admission as the date of the commencement of her illness, and attributed her symptoms to the presence of a tape-worm.

She was emaciated; her skin was sallow and dry; her tongue was loaded with a thick white coating; her breath had a fetid, almost fecal odor; there was anorexia, and her bowels were obstinately constipated. She complained of gnawing pain either in the right or left hypochondrium. The abdomen was painless on palpation and normal in appearance, but soon after it was uncovered for examination the recti muscles were thrown into irregular contraction, causing undulatory movements of the abdominal wall. These movements, as well as the gnawing sensations, were advanced by the patient as proof positive of the existence of an intestinal parasite. To remove this, and at the same time a supposed fecal accumulation, she desired that an opening should be made in the abdomen, and had selected a point just below the right costal border as the position for incision. There were no other signs of mental aberration. The lungs were healthy; there was a soft systolic murmur at the apex of the heart; the pulse was slow and moderately strong. The urine was normal. There was some difficulty at first in obtaining an evacuation of the bowels; but when she was isolated and carefully watched this was readily accomplished, and she soon left the hospital in a state of disgust.\*

The urine is usually altered in chronic gastric catarrh, the change consisting in a deposition of urates, earthy phosphates, and oxalates soon after its evacuation. It is often high-colored, cloudy, and alkaline on passage, with a specific gravity varying in some degree with the amount of fluid taken at the meal preceding.

In my experience the tongue shows one of three conditions: first, it may be broad, pale, indented by the teeth, covered with a thin white coating, through which, along the tip and edges, enlarged and reddened

\* Histories of Cases V., VI., VII., and VIII., taken from the ward notes of Dr. H. D. Harvey and Dr. T. H. Cathcart, resident physicians.

fungiform papillæ protrude; second, the whole tongue may be redder than natural, either smooth and varnished, or roughened by enlarged fungiform papillæ, or by aphthous patches; third, the organ may be large and loaded with a white or yellowish coating, through which, at the tip and edges, enlarged and reddened fungiform papillæ may be seen. The first alteration is seen in atonic conditions, the second when there is considerable gastric irritation, and the third where, after indulgence in eating or drinking, the catarrh has assumed temporarily a more acute type.

Vomiting, present as an occasional symptom in but one of the cases that have been given, is a much less prominent feature of primary than of secondary gastric catarrh. In the latter large quantities of mucus are often ejected, the state of the mucous membrane of the stomach being similar to that of the bronchial tubes in bronchorrhœa. In the dyspepsia of drunkards vomiting of mucus is often a prominent feature, the gastrorrhœa probably depending more upon the congestion due to coincident hepatic disease than to the direct irritation of the alcohol; that is, being to a great extent, at least, secondary in nature.

The stools are commonly scanty, dry, scaly, light-colored, and sometimes covered with tenacious mucus; their expulsion is usually attended with the discharge of flatus. Infrequently, and only where there is an accompanying intestinal catarrh, the stools are semi-liquid, frothy, and chiefly composed of undigested food. Constipation and diarrœa may alternate.

A careful regulation of the diet is almost as important in the treatment of chronic as of acute catarrh of the stomach. Where there is much irritation, a diet of milk and lime-water is to be selected, and when there are no teeth the food should be temporarily of such a kind as to require no chewing, the final object, under both circumstances, being to enable the patient to return gradually to an ordinary, plain diet. This end is accomplished when we give the stomach an opportunity to rest and recuperate, by removing the cause of irritation and diminishing its work, and also in the latter instance by supplying artificial appliances for mastication.

In the usual run of cases it is only necessary to direct a plain diet, considerably restricting the quantity of starchy food, and making certain that the food used is of

good quality, well cooked, and eaten in moderate quantities and slowly. No alcohol should be allowed, and injurious occupations should be modified as far as possible.

Very much may be done by medication. The treatment by alkalies is perhaps the most uniformly successful. The best alkali is bicarbonate of sodium; it may be given, when there is no decided irritation of the mucous membrane, with compound infusion of gentian, or with infusion of columbo or quassia, either bitter adding to the efficiency of the soda. In very chronic cases nitrate of silver may be prescribed with advantage: to produce good results it must be given when the stomach is empty. Dilute muriatic or nitro-muriatic acid, in combination with a bitter, may be used from the outset in atonic cases, but when there is an element of irritation they should not be employed until after a course of bicarbonate of sodium. For the habitual constipation I have lately used with very satisfactory results the ipecacuanha pill before referred to, resorting in very obstinate cases to a pill composed of ext. belladonnae, gr.  $\frac{1}{6}$ , ext. gentianæ, gr. i, ext. colocynth. comp., gr. ij, and ol. cari gtt. ss, administered at bedtime. The painful sensations in the epigastrium are greatly relieved by counter-irritation.

#### CHANCRE OF THE NOSTRIL.

BY J. C. CUTTER, M.D. (HARV.),

Physician to Kaitakushi Hospital, Sappow, Japan.

I WAS consulted, the second week of May, 1879, by a young man of 25 years, single, an official in the department, for severe pain in fauces, with difficult deglutition.

Upon opening his mouth, a prominent enlargement of the tonsil of the left side, with a ragged-edged, excavated ulcer, having a thick, gray-white pellicle on its base, could be seen. The anterior pillars and the arches were injected. The submaxillary and post-auricular glands were enlarged on the left side. Movements of the jaw and pressure on the parts caused pain. He also complained of pain in the meatus of the left ear.

The pellicle was readily removed, and the ulcer touched with a solution of argent. nitrat. A gargle of potass. chlorat. was given him for frequent use; also oil to be placed in the external ear.

He came the next day. The white pellicle was again present. This day the solid nitrate was used. In a few days the ulcer contracted and healed, the pain in the ear subsided, and

the submaxillary gland gave no further inconvenience.

He came a few days later. The mouth, fauces, and pharynx were dry, painful, and sore. The tonsil ulcer had healed. Now the arches and pharynx were injected deeply, white pellicles formed in the angle of the jaws, yet the right tonsil was not affected. The post-cervical glands were noticed to possess a peculiar cartilaginous feel.

I now asked him some questions. His daily duties required him to associate with persons whom he knew to be syphilitic. He used all possible means to avoid contagion, by means of cleanliness and isolation, having a dread of venereal. He denied having had sexual intercourse for months. He had had no trouble with his genitals. His health had been, in the main, excellent.

His genitals were carefully scrutinized, as well as his skin, and no initial lesion was to be found.

It now occurred to him to relate that in the month of March he had had a circumscribed, hard, painful lump on the ala of the left nostril, and that there had been a constant slight discharge from that nostril. The external appearance had attracted the notice of his friends, but he had paid little attention to it. After some days the pain had decreased, the inflammatory redness had disappeared, and soon he missed it altogether. At this time all nasal discharge had ceased. On examining the nose, a small cicatrix was discovered in the mucous membrane of the ala of the left nostril.

He was at once put upon a regular small dose of mercurial, together with iron and quinia, and also instructed as to hygiene.

Since then he has had sore throat, alopecia, some debility, scattered papules, and a few pustules. In June he was much depressed in spirits. In July, he had osteoscopic pains in the wrists and tibial regions. Since August the mental depression has vanished; his weight has increased. His appetite and all his functions are normal. He has not been absent a day from duty. None of his intimate friends suspect that he has been poisoned.

The mercurial has been continued up to the present. On account of buccal and intestinal symptoms, the earlier dose has been reduced.

December, 1879.

## TRANSLATIONS.

**SECONDARY SYPHILITIC EPILEPSY.**—Fournier, in an article on this subject in the January number of the *Annales de Dermatologie et de Syphiligraphie*, says that epilepsy occurring in the earlier stages of the evolution of syphilis shows very different symptoms from that variety due to lesions of the brain, and which ordinarily occurs in the

later stages of the disease. The latter is well known, and has been described by himself in his recent work on syphilis of the brain. After giving notes of three cases out of a dozen which he has observed, Fournier gives the following conclusions: 1. It is impossible to regard the symptoms shown as due to any other cause than syphilis, for these attacks occur for the first time in adult age, while non-syphilitic epilepsy begins in youth. Non-syphilitic epilepsy does not begin and end abruptly. Again, in syphilitic cases, such exciting causes as lead- or other poisoning, alcoholism, worms, etc., may be excluded. Thus, syphilis only will account for the symptoms. 2. In every case observed the epileptic attacks have occurred in the earlier months of the secondary stage, just when nervous troubles are commonest, and most of the cases have been women, who are particularly liable to nervous syphilis. 3. The epileptic attacks occur simultaneously with the appearance of various other syphilitic manifestations, as skin troubles, adenopathy, alopecia, cephalgia, insomnia, neuralgic pains, etc. 4. The epileptic symptoms pursue a parallel evolution with the other syphilitic symptoms. They appear when these are at their worst, they grow better as these improve. 5. As to the curative influence of specific treatment, in each of the cases noted by Fournier the epileptic disease was rapidly and certainly cured by the administration of mercury. Finally, the appearance of epilepsy at this stage of syphilis is not surprising. Secondary syphilis is exceedingly fertile in nervous troubles. In some individuals, notably in women, it gives rise to a state of general nervous disturbance. There appears to be a condition of erethism, which seems to accumulate until it discharges itself in a series of epileptic attacks. In a future communication Prof. Fournier intends to show the distinction between this secondary form of epilepsy and the tertiary form.

**OIL OF EUCALYPTUS A NON-POISONOUS SUBSTITUTE FOR CARBOLIC ACID.**—Dr. H. Schultz (*Cbl. f. Chirurgie*, No. 4, 1880) remarks that the great drawback to Lister's procedure is that in some individuals the carbolic spray exercises a deleterious influence. Fatal cases of carbolic-acid poisoning, occurring in the antiseptic treatment, are now and then reported in the journals, and probably more numerous cases are not heard from. The great question of

the hour, in connection with this subject, is, "Where can we find a substitute for carbolic acid?" This substitute must be—1, a good antiseptic; 2, it must be convenient to use; 3, it must be cheap; and, 4, it must be harmless. Now, in answer to the first of these requirements, it may be stated that Bucholtz has found that eucalyptus oil in a solution of 1 to 666.6 is inimical to bacteria, while carbolic acid only becomes so in the strength of 1 to 200. In addition, Siegen has shown that it causes the abatement of septic fever in rabbits where this has been artificially excited by the injection of pus. Binz has demonstrated that dilute eucalyptus oil prevents the wandering out of white blood-corpuscles, and is thus a preventive of suppuration. Finally, Siegen has shown that eucalyptus oil, even to a greater degree than quinine, prevents the fermentation of meat solutions. With regard to convenience of use, eucalyptus oil, distilled from the leaves, has an agreeable odor; it dissolves easily in alcohol and oil, and mixes easily and perfectly with pure paraffine.

Should eucalyptus oil come into use, its price may be considerably diminished. The leaves are at present quoted at nine marks the kilo in Germany (about one dollar per pound.—TRANS.). The question of harmlessness is perhaps the most important. Siegen took five grammes of the oil within two hours and a half without the least ill effect. Other experiments have given a like result. Eucalyptus oil may, therefore, be employed internally in intermittent fever, with possible advantage, and certainly without fear.

In the practical employment of eucalyptus oil, the open wound may be dressed with a bit of lint saturated with a ten per cent. solution of eucalyptus oil in olive oil, and outside of this may be laid gauze impregnated with eucalyptized paraffine (50 per cent.). The spray may be made of pure eucalyptus oil, or a solution in alcohol. For irrigation, the oil, alone or in alcoholic solution, may be mixed with water in various proportions, and shaken well before using, the resulting emulsion lasting quite a while. Schultz recommends the eucalyptus oil on theoretical grounds. A field is, therefore, open to the enterprising surgeon who first makes use of it in practice.

**GIANT GROWTH.**—Under the name of "giant growth" (*Rieserwuchs*) H. Fischer (*Cbl. f. Chir.*, No. 3, 1880; from

*Deutsche Zeitschr. f. Chir.*) describes a condition of lengthening and thickening, either of an entire half of the body or of single extremities or parts of extremities. The condition may be either congenital or acquired. In one case of the former, occurring in a girl nine years of age, the hypertrophy affected the arm and leg of one side, which were longer and thicker than the other. The cutaneous veins were ectatic. Functions not altered. In another case of overgrowth of the right arm there was disturbance of sensibility, with trophic ulceration on the fingers. Motion unimpaired. Other cases are cited. In one of these the overgrowth was dependent upon a cavernous lymphangioma. In another, elephantiasis of the penis was present, hypertrophy of the left lower extremity, and incipient change in the right. In one case small papules and blebs continually appeared on the thighs. From some of these a perceptible quantity of a lymphatic fluid flowed. This lymphangiectasis was apparently congenital.

Congenital "giant growth" is, according to Fischer, to be attributed to foetal disturbances in the veins and lymph-canals, resulting from a malposition of the limbs in the uterus. No therapeutic measures avail. Acquired "giant growth" is such as is shown in the peculiar drum-stick-shaped finger of elephantiasis and the increase in length of the limbs following bone and joint troubles.

**NOCTURNAL TERRORS OF CHILDREN.**—Dr. Wertheimer (*Jour. des Sci. Méd.*, 1880, p. 44; from *Deutsches Archiv f. Klin. Med.*) recommends quiet, a large, airy, well-lighted chamber, and a light supper. Quinine, if the terror returns night after night, in the dose of two to four grains, bromide of potassium in the dose of four to eight grains an hour before retiring, sometimes adding a small quantity of chloral. General debility, etc., is to be combated by oil, morrhuae, milk, iron, salt baths, and cold effusions.

**TUBERCULOSIS FOLLOWING THE OPERATIVE TREATMENT OF FUNGOUS INFLAMMATION OF THE JOINTS.**—E. Neumeister (*Cbl. f. Chir.*, 1879, No. 51; from *Inaug. Diss.*) shows, as the result of a statistical examination, that even in apparently favorable operations for fungous, that is tuberculous, disease of the joints, the patient is in danger of acute tuberculosis. That this tuberculosis is a result of an infection from the fungous joint cannot, he thinks, be proved.

## PHILADELPHIA MEDICAL TIMES.

PHILADELPHIA, MARCH 13, 1880.

### EDITORIAL.

#### NEWSPAPER EXPERTS IN INSANITY.

THE course pursued by certain daily journals of this city in their criticisms on the case of Dr. Shulze, who was said by some of his friends to have been improperly detained in the Pennsylvania Hospital for the Insane, has been thoroughly discreditable. It would appear, to take the most charitable view of the matter, that they had judged the case of the alleged lunatic, and had pronounced their verdict, without waiting for the more strictly official investigation. When, subsequently, the jury and the commissioner appointed to examine into the affair, with the aid and advice of experts in insanity, arrived at a conclusion different from that attained by the newspapers, it was but natural that the latter should resent strongly such a deviation from their expressed opinion. It seems, however, that not only did these journals keep up a running fire of animadversion upon the witnesses and their testimony throughout the course of the judicial investigation, losing no opportunity to disparage the character and testimony of physicians so eminent and honored as Drs. Kirkbride and Ray, but, since the jury and commissioner have rendered their conclusions in strict accordance with the testimony presented, the journals alluded to have attacked the verdict unsparingly. It is difficult to imagine what the animus of these attacks on a venerable and beneficent charitable institution can be, but that there is something underneath this malignity can hardly be denied. The hospital is entitled "the mad-house into which Dr. Shulze was

kidnapped;" the physicians are called "keepers;" and the course of treatment followed,—the kindly care and the sedulous seclusion from exciting and harmful agencies,—which has resulted in the cure of the patient, is styled a "long incarceration in a mad-house." The object of these attacks is, obviously, to weaken the influence of the Pennsylvania Hospital for the Insane, to excite prejudice against it in the eyes of the community, and, if possible, to lower the reputation of the gentlemen who have devoted a useful lifetime to the amelioration of the condition of the insane within and without its walls.

That such reputations should be in the least clouded by newspaper calumny is not likely; but that prejudice may be aroused in the lower strata of the community against the prompt and thorough treatment of the insane is not impossible, and that the reluctance to intrust relatives to hospital care may result in an increase of the chronic and irremediably insane in our midst, not to speak of the possible violent deaths which may occur from want of proper oversight, is greatly to be feared. It would seem, indeed, as if words could scarcely be too strong to characterize properly such an effort to inflame vulgar prejudice and arouse opposition to institutions which are among the choicest fruit of our modern civilization.

### LEADING ARTICLES.

#### THE NATURE OF MALARIA.

PROFESSORS KLEBS and Crudelli, who have recently spent some time in the neighborhood of Rome with the intention of investigating the cause of malarial fevers, have recently published an account of their researches.\* From an abstract of their report, published in a recent number of the *Medical Times and Gazette*, we learn that the investigators followed a very deliberate plan in the per-

\* *Studien über die Ursache des Wechselfebbers und über die Natur der Malaria.—Archiv f. Exp. Pathol. u. Pharmacol.*, Bd. xi.

formance of their task. Their communication begins by a full account of the mode of propagation of the malarial fevers, in which they examine the various theories of soil, atmosphere, and locality which have been adduced as explaining the prevalence of these fevers, and show how baseless are many of the ingenious hypotheses which have from time to time been brought forward to account for their occurrence in one place rather than in another.

It has been established beyond doubt that in malarial districts three distinct factors are necessary for the production of intermittent fevers,—(1) high temperature of the air; (2) constant moisture of the soil; and (3) free access of air to the moist layers of the ground. These facts, in connection with the history of malarious diseases in those countries where its prevalence has been noted for long periods of time, point rather to a corpuscular nature for the poison than a gaseous, and are in favor of a fungous origin of malaria. During the last twenty years many efforts have been made to find a specific malarial fungus, with more or less success. No investigations thus far made, however, have commanded entire confidence. To establish a substantial theory of a parasitic origin of malarial disease, it is necessary to prove (1) the constant existence of a definite species of organism in the malarial soil, as well as in the air situated above such soil; and (2) that this same species of organism is alone sufficient, without the concurrence of any other disease-generator, to produce true intermittent fever. In experiments upon animals, with this end in view, it is necessary, in order that intermittent fever may be recognized as produced in the animal by the introduction of the organisms, (1) that intermittent feverish attacks should occur; (2) that enlargement of the spleen in the characteristic form should occur, distinguishable from the enlargement of the soft septic spleen; and (3) that there should be no loss of weight,—at least during the first feverish attacks. Another important kind of evidence for the malarial infection of animals is the characteristic black pigment in the spleen, the liver, the marrow of the bones, and the blood.

Professors Klebs and Crudelli first succeeded in producing the symptoms of malarial poisoning in animals by injection of watery extracts from the marshy soil.

They then proceeded, by the process called "fractional cultivation," to isolate the active material,—that is, the true generator of the disease, supposed to be a living organism. Lastly, they isolated the organisms by filtration, and, comparing the results obtained in injections of the filtrate from those produced by the residue containing the organisms, they proved that the poison of malaria resides in these. The fungi obtained appeared as small rods of 0.002 to 0.007 millimetre in length, growing into long, twisted threads. The fungus is markedly aërobioptic. If air is excluded, it dies out. The injection of these fungi—true *bacilli malariae*—into healthy animals always gives rise to symptoms of intermittent fever, with enlargement of the spleen, etc. Later, Dr. Marchisava, at Rome, was able to demonstrate spores and bacilli in the spleen, the marrow, and the blood of three persons who had died of pernicious fever, showing the same characters as those observed by Klebs and Crudelli. In summarizing the results of their investigations, the authors consider the following facts as proved: 1. That it is possible to reproduce malarial infection in every form in rabbits in which it is known in men. 2. That the malaria produced artificially in animals is generated by organisms existing in the malarial soil at a time when the outbreak of the fever has not yet taken place.

## CORRESPONDENCE.

### BOSTON LETTER.

BOSTON, February 19, 1880.

M R. EDITOR.—In a former letter I gave you a sketch of the condition of things in Massachusetts previous to the passage of the bill which disposed of the prehistoric coroner system and provided for the appointment of properly educated medical examiners, whose duties are limited to the examination of the bodies of those who die by violence, suicide, etc., the legal aspects of each case being left to the courts. This system is working harmoniously and satisfactorily.

Upon reading the statute concerning medical examinations and inquests, one easily saw that the operation of the law would be inefficient unless the medical examiner were fully qualified, and, moreover, thoroughly interested in his share of the responsibility. More than this, it was at once observed that the radical change in the system of investigation would lead to confusion, unless the whole

body of medical examiners harmonized in a common understanding of the principles which underlie the statute. Certain of the newly-appointed medical examiners, therefore, invited their associates to meet them, for the purpose of organizing a society. The meeting followed, and the Massachusetts Medico-Legal Society came into being. The question as to who among medical men should be received as members of the Society was settled by the decision that those who have been admitted to and still are members of the Massachusetts Medical Society should be considered eligible. This decision insures qualification so far as medical education is concerned, and refers strictly to medical examiners. Other members may be elected from the medical, legal, or scientific professions, but are known as "associate members."

The purposes of the Society are clearly set forth in the constitution, viz., "To elevate the official character of the medical examiner, and assist him in the discharge of his duties; to collect and utilize such facts as have a medico-legal value; and to excite a general interest in the subject of forensic medicine, and promote its successful cultivation." Officers are chosen annually. The expiration, without renewal, of the commission of a medical examiner terminates his *regular* membership. Thereafter he would be known as an associate member. The associate members will always consist, in part, of the Attorney-General of the Commonwealth, the several district attorneys of the State, and the members of the State Board of Health, *during their respective terms of office*. The business of the Society is managed, and its expenses are paid, by the regular members. Associate members are allowed to attend only those meetings to which they are invited, and on those occasions they have the privilege of taking part in all discussions, and may present papers. The admission-fee of regular members is two dollars. They are also subject to whatever *pro rata* assessment may be necessary to meet authorized expenses. Every regular member is obliged to forward to the Corresponding Secretary a full and complete report of each case which receives his official attention. The annual meetings take place on the day and at the place of the yearly meeting of the Massachusetts Medical Society. Thus far, papers by regular and associate members have been read at the anniversary meeting of the State Society. This is an excellent plan,—one which not only furnishes the members of the latter society with medico-legal knowledge, but which will gradually make them familiar with the proper manner of managing a medico-legal case. Such information, it need not be said, will not come amiss in any portion of our country.

The disgraceful system of coroners, then, is not only a thing of the past, but has given place to an organization of educated phy-

sicians, the outcome of whose duties will exert an immense and beneficial influence in advancing medico-legal science. Moreover, these men, having seen the necessity of mutual discussion and study of the principles of legal medicine, have formed this extremely valuable Society, whose interests they foster with steadfast and generous enthusiasm. In spite of the very apparent good which the community is deriving and will continue to derive from the results of this great change in medico-legal investigation of violent deaths, it probably is true that we do not yet begin to appreciate its benefits.

Heretofore, those who managed the coroner's jury investigations were, many of them, so densely ignorant of their duties that, in comparison, the grave-digger in Hamlet was a Nestor in medico-legal knowledge. There was dishonesty, bribery, concealment of crime, and robbery of the dead. All this is now historical, and the State is protected by honest, earnest, cultivated men, who, besides, are developing the medico-legal knowledge which Massachusetts sorely needs. Will not your State and every State in the Union follow the wise and beneficial example of ours?

The Medico-Legal Society annually publishes a volume of Transactions, including the papers read at yearly meetings. Let me show their value by naming some of the subjects treated: "The Relation which Chemistry bears to Forensic Medicine;" "The Value of Anatomical Appearances;" "Concerning Coroners and the Theory and Practice of Inquests;" "Cases illustrating the Work and Duties of the Medical Examiner;" "The Evidence of Still-Birth;" "A Medico-Legal Case of Abortion, followed by Conviction of the Accused Abortionist;" "Medical Expert Testimony, what it is and should be;" "Clinical and Anatomical Evidences of Abortion," etc. In the volume for 1879 is an appendix, containing "Suggestions for the Medico-Legal Examination of Dead Bodies" and a letter from the Attorney-General concerning fees of witnesses at autopsies. Not a word need be added as to the great value of papers upon such subjects written by capable men. In view of the good already wrought by the new régime, one involuntarily asks the questions, Why did we wait so long for this excellent system? Is it possible that until the year of grace 1877 we endured the abominable machinations of ignorant coroners? The medical examiner system should be introduced into every State. Following this, a national society of examiners should be formed and annual meetings held. The benefit to the country at large would be incalculable.

To-day another medical battle is being fought in Massachusetts. The prospect is that, foot, horse, and dragoons, the enemy will not only be routed, but driven—*into Pennsylvania*, for example. We are fighting

for a law against quacks. They abound and increase among us exceeding abundantly. They smite all our borders. Like unto the frogs of Egypt, they come into our houses and into our bed-chambers, almost upon our beds; into the house of our servants and upon our people. In Egypt the frogs "died out of the houses, out of the villages, and out of the fields. And they gathered them together in heaps, and the land stank." We will dispense with the last clause; otherwise, may it be likewise with Massachusetts quacks.

The parties to this movement are regular, homœopathic, and eclectic physicians, lawyers, and good citizens. It originated in the Social Science Association, which appointed a committee and instructed them to prepare a draft of a proposed law to regulate the practice of medicine in this State. This the committee did. The draft was then laid before leading physicians throughout the Commonwealth, and received their approbation. A committee at the State-House is now engaged in listening to evidence in favor of and against the law.

The proposed law recognizes three classes of practitioners, viz., members of the Massachusetts Medical, Massachusetts Homœopathic Medical, and Massachusetts Eclectic Medical Societies, and none other. It proposes the appointment of a State board of censors, which shall comprise representatives of these three Societies. Applicants for licenses must show a diploma from a recognized regular, homœopathic, or eclectic school, and likewise proper qualifications for practice. They are to be examined on such subjects as the board may deem necessary, *not including therapeutics*.

It is needless to give you even a synopsis of the various sections of the proposed law, for its whole purport is to rid the State of ignorant, dishonest men, who kill and rob the credulous. If a man be educated in *medicine*, he will be licensed. You will observe that no applicant will be examined in *therapeutics*. This feature of the law makes a unit of all public-spirited physicians of the three schools which I have mentioned. They join hands in pushing the bill, and can meet in perfect harmony as censors, for the matter of treatment of disease will not be broached. A candidate who gives evidence of familiarity with the other six branches of medicine will pass the board of censors.

It need not be said, however, that the quacks are fighting the bill tooth and nail. A so-called homœopath has published, in several of our daily journals, a letter, in which he is silly enough to attempt to prove that the medical bill is only an underhanded attempt of members of the Massachusetts Medical Society to drive homœopaths out of the State. The utter weakness of the plea is shown by the character of the proposed law, by the representation given to homœopaths,

and by the suppression of therapeutics in the subjects upon which candidates will be examined. Moreover, this letter was answered by another homœopath, who refutes the charge it brings forward, and expresses the opinion that the letter in question was not written by a homœopath, but by one of the quacks who are working anonymously against the law. Very amusing, as well as very grave, developments are being brought before the committee at the State-House. One witness, a stolid German, after relating his experience, ended by saying, "Dose toctors dit not cure me; de quags dit. At bresent de man is in der Shitate brison, and his wife." Liberty-loving citizens clamor for the right to employ any healer they may select, and miraculous cures by blacksmiths, police-officers, etc., are related. But the opposition, bitter as it is, is of very inferior quality, and will accomplish nothing. A majority of the Legislature is already pledged in favor of the bill, and, indeed, there can be no reason for negative votes, for the law does not favor any particular school, but looks wholly to the benefit of the public. Supporters of the law have told the committee almost impossible stories of the fatal results of the ignorant treatment of the sick by all sorts of villains, who gull the credulous.

But there is one feature, in the virulence with which the law is opposed, which is to be greatly regretted. It must be confessed that some of the laity have become prejudiced against our school through the stupidity and blundering ignorance of men who have graduated from, and *are still being turned out by*, medical schools of the second class. These men show the diploma of schools whose names have been good, but such diplomas are no longer and never have been guarantees of the proper qualification of the holder. You and I both know men who have been graduated at schools which stand high in the list of medical institutions, and yet who are absolutely ignorant of medicine. These men should be at the bench of the carpenter, before the mast, behind the plough, but they have every right but a divine right to take human life in their hands, when in truth they should not be trusted with the care of a sick cat. Such men not only exist, but their number is being increased. They hurt us; they misrepresent us; they bring reproach upon us. A *little* knowledge, especially of medicine, is so dangerous that one might just as well employ downright quacks, clairvoyants, spiritual healers, or any other of the devilish crowd of charlatans, as these ignorant graduates, whose dose of arsenious acid is "five grains;" who say "the heart is lined by a mucous membrane," that a throat is in "a cathartic condition," that the patient is "anaëmic," etc., etc. The responsibility for their existence as regular and, of course, professedly educated practitioners, lies with the

men who sign their diplomas, not having the grit to risk a possible lessening of the amount in the pool by refusing their signatures. It will not do to have it said that they make the final examination an honest *sine qua non* for a diploma by requiring intelligent answers. The deplorable effect would be a diminution in the size of their classes. That would never do. The public must take care of itself.

At the last meeting of the Boston branch of the State Medical Society was a sprinkling of good and strong men who, from various motives, opposed the medical bill. But their number is so small, not only here, but throughout the State, that it will be seen that the bill has found universal acceptance and favor among all well-minded citizens; and those physicians who now object to it undoubtedly will reconsider their position and favor it. They do not oppose it as a whole, but merely do not agree with certain sections of the law. The general feeling is: push it through; get in an opening wedge, and modify the law afterwards. There is no time to be lost, for quackery is daily on the increase.

In a future letter I hope to tell you that the law is in force.

Another topic of interest is the question of the admission of women to the Massachusetts Medical Society. At the October (1879) meeting of the Councillors of the Society it was voted that women be admitted for examination. A legal point not yet settled, but which escaped the notice of the Council at that time, led the censors to ask for further instruction, and made it apparent that the by-laws required modification before women could be admitted. This necessitates concurrence of the whole Society. The censors presented a protest at the February meeting of the Council, and the result was a vote that the October decision be reconsidered. So that the matter remains where it was last summer.

H. O.

## PROCEEDINGS OF SOCIETIES.

### PHILADELPHIA COUNTY MEDICAL SOCIETY.

A CONVERSATIONAL meeting of the Society was held at the hall of the College of Physicians, Philadelphia, January 14, 1880, Dr. Henry H. Smith, President of the Society, in the chair. Professor James Tyson presented a paper on "Casts of the Uriniferous Tubules—their Nature and Clinical Significance." (See page 289.)

#### DISCUSSION ON RENAL TUBE CASTS.

Dr. Frank Woodbury said he hoped that Dr. Tyson's paper would not be allowed to pass without discussion, since many members of the Society could doubtless contribute much valuable information upon the interesting and important points presented. Without attempt-

ing formally to discuss the subject, but simply with a view of opening the debate upon it, he desired to offer a few thoughts suggested by the reading of the paper.

In regard to the intimate structure of casts, the question had been raised, and the opinion of various authorities quoted at some length, as to whether hyaline casts are of fibrin formation or not. In the speaker's opinion this was a subordinate and comparatively unimportant question from a clinical point of view. Inasmuch as the composition of fibrin itself is still under dispute, it would first be necessary to establish the authenticity of physiological fibrin before deciding whether or not a pathological product is to be considered as fibrinous. The protein, or albuminoid, compounds are numberless, and are far from being fully known, even in health. What changes in their molecular or chemical characters may occur in diseased states opens a wide field for conjecture. Fibrin is a derivative or an allotropic form of albumen; so is mucin. Whether or not in disease there might for instance be an intermediate compound between fibrin and mucin, differing from either and yet possessing many of the characters of both, has not been decided; we are safe, however, in agreeing that the substance forming these hyaline casts is an "albuminous coagulable substance poured out on the inner surface of the tubules" whose shape it retains. Upon this, as a foundation or matrix, we may have superadded blood-cells, inflammatory granulation material, and renal epithelium in various stages of destruction; or the exudation substance may remain transparent and clear, forming simply hyaline or so-called waxy casts.

As regards the causation of these pathological elements, they may be divided roughly into (1) accidental, (2) inflammatory, and (3) degenerative. It is taught by some distinguished observers that casts may occasionally appear, even in normal urine, without disease of the kidneys; and it is asserted upon good authority\* that in obstructive jaundice hyaline casts sometimes appear in the urine, probably as the result of irritation,—the kidneys being normal and no albuminuria being detected. In the inflammatory form we have, generally, well-recognized processes going on in the kidney, which are accompanied by epithelial desquamation; subsequently blood may exude and enter into the tube cast, or this exudation may be primary and due to traumatism, or to intense congestion from the presence of irritating substances in the circulating fluid.

The process going on in the kidney epithelium in acute inflammation is probably analogous to that which takes place in superficial dermatitis. In the case of facial erysipelas

\* Prof. Nothnägel, Deutsches Archiv für Klinische Medizin, October, 1873.

which on the fourth day is attended by albuminuria and shortly afterwards by the appearance of renal epithelial cells and tube casts, it may be assumed that on the visible portion of the surface nature is performing a pathological experiment, and that the changes going on in the lining membrane of the kidney tubules are the same as those immediately under the eye of the clinical observer; there is first a determination of blood, followed soon by discoloration and swelling; secondly by inter-cellular effusion; and finally by the complete separation of the old cells, which desquamate in sheets, exposing the new epithelium beneath. It is not necessary to suppose that the portion cast off is in any proper sense a secretion of the ordinary cells, but they are simply thrown off and new cells take their place. As already suggested, however, the mucous secretion may be changed by disease so that an abnormal amount of albumen may be thrown out in the tubules and there form casts or plugs similar to those constantly occurring in catarrhal conditions of the upper air-passages. The microscopic characters of the urine in those chronic renal diseases accompanied by the exfoliation of imperfectly formed or prematurely degenerated epithelial cells, such as in the chronic interstitial nephritis, or the amyloid, and the fatty kidney, have been already dwelt upon by the lecturer.

As far as the point of formation is concerned, it would appear that these casts might be formed in any portion of the tubuli uriniferi where epithelium exists, or where an exudation may take place after the epithelial cells have been destroyed. There would be, in the speaker's mind, no reason for denying the supposition that the casts of large calibre might be formed in the collecting-tubes, while smaller ones might be moulded in the loops of Henle or in the convolutions of the cortical structure. It is probable that many epithelial casts formed in the convoluted portions undergo disintegration in their long and tortuous passage, and appear simply as fragments, granular matter, or individual cells in the urine. As regards the time it requires for the casts to be discharged after formation, it is seen that in erysipelas they appear almost coincidently with the desquamation upon the face and the albuminuria; in other words, in acute desquamative nephritis some casts are cast off as soon as formed. Possibly those casts that appear first (granular exudative casts of large and medium size) owe their origin to the collecting portion of the tubes. The well-known difference in the character of the epithelium lining the ascending arm of the loop of Henle from that of the descending arm, and the very small calibre of this loop, also appear to favor the opinion that the principal site for the formation of perfect casts would be in the intercalated tubule beyond this point, rather than in the convoluted portion preceding it. The opinion generally held is that hyaline

casts of small size are formed in nearly normal tubules, while those of large size come from ducts which have been previously denuded of their epithelial lining.

In addition to the forms of albuminuria mentioned by the lecturer, in which no casts are found, the speaker referred to the transitory albuminuria of adolescents, in which he had repeatedly searched for casts without success, the albumen subsequently entirely disappearing from the urine.

The conclusions of the lecturer in regard to the clinical significance of the different forms of casts conveyed information both valuable and practical; but of course it was understood that in the diagnosis and prognosis the size and number of the casts are also taken into consideration, also the daily quantity, and chemical characters, of the urine excreted, as well as the other rational and physical characters of the disorder.

Dr. Horace Y. Evans expressed his satisfaction with the views presented by the lecturer, and said that he had met casts so frequently in the urine, particularly oily casts, which did not appear to be accompanied by the grave symptoms which we have been led by the text-books to expect in these patients, that he had finally concluded that they were not of much consequence. He would place more reliance upon the other clinical features of the disease, in forming a prognosis, than simply the appearance of the casts.

Dr. Tyson, in closing the debate, said that he did not believe that casts are formed in any one way, but there is no doubt that they are formed of albuminous or protein substance; many are made up entirely of this material. That some are made up of desquamating epithelial cells is equally certain, and that others are formed by the fusion of cells is also probably as true. On the other hand, he did not think that any reason exists for believing that the mere coagulation of albumen ever forms casts, or that they are a product of the secretion of the cells.

As regards the albuminous base of casts, when present, it is formed by the coagulation of material exuded from the blood. Plasma is thrown out and assumes the shape of the cavity, thus forming a plug, which, afterwards contracting, is extruded as a cast, and in a large number of cases the cylinders are made up of this substance alone.

In the diagnosis of renal disease, not only the casts, but the quantity of the urine daily excreted, and other clinical features, must be taken into consideration. He, however, believed that in many cases of Bright's disease the diagnosis can be made from an examination of the urine alone.

As to the significance of oil-casts in the urine, he differed totally from the last speaker. He had never found them in urine that was free from albumen. He considered oily casts as of considerable import, and looked upon

them as always indicating structural change in the kidneys.

EXHIBITION OF NEW SURFACE THERMOMETERS, BY DR. HENRY LEFFMANN; WITH REMARKS UPON CEREBRAL THERMOMETRY, BY DR. CHAS. K. MILLS.

In connection with certain forms of surface thermometers exhibited this evening, we offer a few remarks in regard to the construction and use of such instruments. Surface thermometry as a systematic method of observation is largely due to the elder Seguin, who, in 1867, urged its importance (*Medical Thermometry and Human Temperature*, by E. Seguin, M.D. William Wood & Co., New York, 1876). This work contains a voluminous bibliography. In the Seguin thermometer the base of the bulb is comparatively broad and flat, and the thin glass surface forms an elastic diaphragm, which, by yielding to pressure, introduces an error. In two thermometers examined by us recently the error from this cause amounted to  $0.5^{\circ}$  and  $1^{\circ}$  respectively. Different instruments vary in this respect. Dr. L. C. Gray, in his experiments, used Seguin thermometers constructed especially to avoid this error (*Cerebral Thermometry, New York Medical Journal*, August, 1878). In a discussion at the Philadelphia Pathological Society (*New York Medical Record*, December 14, 1878), Dr. Mills explained a modification of the Seguin thermometer, devised by Dr. Leffmann and himself. Two corks were placed in a common test-tube, one at the middle and the other on a level with the mouth; and through these the stem of the thermometer was passed, the bulb being brought flush with the outer surface of the lower cork. In this way the effects of currents of air, of handling, and of pressure were in great part avoided.

We exhibit this evening several Mattson's *Surface Thermometers*, obtained from J. H. Gemrig & Sons, Philadelphia. They are reliable in most respects. The bulb consists of a spiral tube, about 1 mm. ( $\frac{1}{25}$  inch) in diameter and 5 cm. (2 inches) long, making nearly three turns. The stems in different instruments vary in length from 13 to 15 cm. (5 to 6 inches). The mercurial column is very fine, probably about 0.33 mm. ( $\frac{1}{75}$  inch). The scale runs from  $90^{\circ}$  to  $110^{\circ}$ . The bulb and lower fifth of the stem are protected by a cylindrical casing of hard rubber, open below. The stem passes through a rubber diaphragm within the casing. The upper part of the case unscrews. The instruments are not appreciably influenced by pressure. This is due to the spiral bulb, which presents a firm cylindrical and also extended surface. The encasing carries out the above-mentioned modification by tubes and corks. It is necessary to enclose more than the bulb. We would suggest a cover of felt, closely fitting the bulb and covering only a small portion of the

stem. Experiments made with covered and uncovered bulbs have shown a difference of nearly a degree in the record.

It is difficult to make a reliable surface thermometer. We have examined carefully each of the instruments exhibited this evening, and find some defects and differences. Observations in surface thermometry may be valuable, although the instruments are not absolutely perfect. Each instrument should be carefully examined and compared with a standard. By correcting for known errors approximate accuracy at least can be obtained. A scale from  $70^{\circ}$  to  $120^{\circ}$  F. is preferable to the one used here,— $90^{\circ}$  to  $110^{\circ}$  F. Fahrenheit degrees are most suitable for all medical thermometers, because, being smaller in value than Centigrade, fractions may be disregarded with less error.

It may not be amiss to speak briefly of two other methods of measuring temperature, namely, by metallic thermometers and thermo-electric batteries. The metallic thermometer is generally a bar of two or more metals, differing widely in expansibility. Changes of temperature produce a bending of the bar, which, by operating a lever and pointer, registers the degrees of heat. Such instruments may be made compact, delicate, and self-registering, and can be adapted for medical purposes. Thermo-electric batteries, as generally made, are very sensitive, but require a galvanometer and delicacy of adjustment difficult to attain in ordinary clinical observations. They have been used in several forms and under various names in medical investigations. By employing in the instruments metals differing but slightly in the thermo-electric scale, adjustments could be more easily made and too minute changes of temperature would not be recorded.

Our remarks upon the use of surface thermometers in the investigation of disease will be very brief. We simply desire to call the attention of the Society to a few of the more important results which have been accomplished.

Cerebral thermometry only dates back to 1877, when Broca published some observations on the temperature of the surface of the head (*Lancet*, October 20, 1877, and *Progrès Médical*, 1877). Dr. Landon Carter Gray's paper on cerebral thermometry, noted above, attracted general attention, both at home and abroad. Both Broca and Gray made many careful observations on the temperature of various regions of the head in health. Gray gives one case of brain tumor in which surface thermometry was of assistance in locating the growth.

Dr. Mills (*American Journal of the Medical Sciences*, October, 1878) published some observations in surface thermometry in a case of vaso-motor and trophic affection of the fingers. He has also published two series of observations in cases of tumor of the brain

(*Philadelphia Medical Times*, January 18, 1879, and *New York Medical Record*, August, 1879).

Drs. Maragliano and Sepilli, of Reggio nell' Emilia, Italy, have made investigations into the cerebral temperature of the sane and insane. Their essay was read before the Medical Congress at Pisa, September 28, 1878. We have received from Dr. L. C. Gray an abstract of their observations, reprinted from the *Archives of Medicine*.

Their conclusions are so interesting, and so little known to the profession generally, that we think it will be worth while to present some of them in condensed form. 1. It is exceptional to find the average temperature of the head higher than normal in simple lypemania and dementia. 2. The highest temperature is found in furious mania,  $36.9^{\circ}$  C. ( $98.4^{\circ}$  F.); then, in decreasing ratio, in lypemania agitata,  $36.8^{\circ}$  ( $98.2^{\circ}$  F.); in progressive paralysis,  $36.6^{\circ}$  ( $97.9^{\circ}$  F.); dementia agitata,  $36.5^{\circ}$  ( $97.7^{\circ}$  F.); imbecility and idiocy,  $36.3^{\circ}$  ( $97.3^{\circ}$  F.); simple mania,  $36.3^{\circ}$  ( $97.3^{\circ}$  F.); simple lypemania,  $36.2^{\circ}$  ( $97.1^{\circ}$  F.); simple dementia,  $36.0^{\circ}$  ( $96.8^{\circ}$  F.). 3. In all mental disease the occipital lobes are of lower temperatures than the others; the temperature of the frontal lobes, which equals that of the parietal in dementia agitata, in idiocy, and imbecility, is higher in mania, in simple lypemania, and simple dementia; whereas in progressive paralysis and lypemania agitata the temperature of the parietal lobes is higher than that of the frontal. 4. In all the principal groups of mental disease the averages of the two sides of the head are almost equal, with the exception of congenital forms, in which the various regions of the right side show a higher figure than the left.

These authors found the cerebral temperature of the sane to be higher than did Broca and Gray, but explain this disparity by the fact that they did their work in June, July, and August, whilst Broca and Gray performed theirs in the winter and early spring. Professor Maragliano ascertained that thermometers placed on the skull were accurate indices of the temperature of the contents of the skull. He filled a skull with water at different temperatures, leaving the integument and hair in place, and he ascertained that the thermometers placed externally followed faithfully the oscillations of temperature of the water within as denoted by thermometers placed therein. He also found that during sleep induced by chloral there is a constant decrease of temperature. In three cases of embolism of the brain, too, he found the temperature decreased. Maragliano and Sepilli give tables which show in detail the above and other facts.

Surface thermometers have been used in surgery for the determination of the condition of tumors, abscesses, etc. Professor Peter, of France, has made several valuable

contributions to the Paris Academy of Medicine with reference to morbid local temperatures in thoracic and abdominal affections; and Flint, of New York, and Da Costa, of Philadelphia, are doing important work in the same field.

#### DISCUSSION UPON LOCAL TEMPERATURE IN DISEASE.

Dr. M. O'Hara had been interested in the subject, especially in its application to the detection of early tubercular disease. In regard to the diagnosis of intracranial lesions of an inflammatory or irritative character, he pointed out the fact that the local temperatures upon the scalp are only the index of the radiated heat, and not necessarily a measure of the heat of the brain itself. In making such observations it would be proper to record in each case also the temperature of the surface, as well as the temperature of the surrounding air. Different parts of the body may radiate the heat to a greater or less degree than normal, and thus affect any local temperatures of the cranium; every report should be accompanied by notes of the general heat, so that when a frontal temperature is given, we would know its relation to other points on the surface. He had made a series of observations recently, at the St. Mary's Hospital, upon cases of chest troubles particularly, the notes of which were carefully made by the resident physicians of the hospital, Dr. Diehl and Dr. Smith, to whom he wished to return thanks. He invited attention to the following preliminary local temperature observations.

*Chronic Pleuritic Effusion on Right Side.*—Temperature in right axilla, by clinical thermometer,  $100^{\circ}$ ; in left axilla,  $100^{\circ}$ . Over effusion, by surface thermometer,  $95.5^{\circ}$ ; over side opposite to effusion,  $96.8^{\circ}$ .

*Phthisis—Large Cavity at Apex of Right Lung and Deposit in Apex of Left Lung.*—Temperature in right axilla, by clinical thermometer,  $102.5^{\circ}$ ; in left axilla,  $102.5^{\circ}$ . Over cavity in right apex, by surface thermometer,  $100.5^{\circ}$ ; over left apex,  $100^{\circ}$ .

*Typhoid Fever in Third Week.*—Temperature in right axilla, by clinical thermometer,  $104.3^{\circ}$ ; in left axilla,  $104.7^{\circ}$ . Over right iliac fossa, by surface thermometer,  $101.6^{\circ}$ ; over left iliac fossa,  $105.5^{\circ}$ ; over heart,  $100^{\circ}$ ; over frontal region of head,  $100.2^{\circ}$ .

*Syphilitic Tumor of Brain.*—Temperature in right axilla, by clinical thermometer,  $99.5^{\circ}$ ; in left axilla,  $99.9^{\circ}$ . In right frontal region of head, by surface thermometer,  $96.5^{\circ}$ ; in left frontal region of head,  $97.5^{\circ}$ .

*Traumatic Erysipelas of Face due to Necrosis of Lower Jaw, which commenced on Right Side and spread to Left Side of Face, where it was now disappearing.*—Temperature in left axilla, by clinical thermometer,  $99.5^{\circ}$ ; in right axilla,  $100.3^{\circ}$ . On right side of face, near seat of lesion, by surface thermometer,  $94^{\circ}$ ; on left

side of face, corresponding to seat of lesion on right side, 95.6°.

Dr. Charles B. Nancrede, in commenting upon the stations selected by Dr. Mills upon the surface of the skull, said that if the diagram were correct he thought that the posterior station is very close to, if not exactly over, the confluence of the sinuses, while the middle one is nearly over the middle meningeal artery. One and one-half inches behind the internal angular process of the frontal bone, on a level with the upper margin of the orbit, brings us directly over the middle meningeal artery, about the site of Dr. Mills's lateral station. In the vast majority of cases the right lateral sinus is larger than the left, and might produce a change of a fraction of a degree in this station. We should also take into consideration the varying thickness of bone in different parts of the skull, and in different skulls, as a thin bone would transmit heat more readily. In children the points of greatest thickness are different from adults; the parietal protuberances are the points of ossification, and are the thickest portions of the bone; but in the adult these are among the thinnest.

Dr. Mills agreed with Dr. O'Hara as to the propriety of noting, in cerebral thermometry, the general temperature of the body, in the mouth, axillæ, and rectum, as well as that of the surrounding air of the room. Although he had usually recorded the axillary temperatures, he did not think that there had been shown to be any uniform agreement between the temperatures taken in the axilla and those of the other portions of the body. The published operations of Broca, Gull, Brown-Séquard, and the speaker had shown that there was, however, some positive relation between the temperatures in these stations upon the skull and diseased local processes in the brain beneath.

Dr. W. R. D. Blackwood read the report of a case illustrating the necessity of accurate diagnosis. (See page 295.)

## REVIEWS AND BOOK NOTICES.

**OUTLINES OF THE PRACTICE OF MEDICINE, WITH SPECIAL REFERENCE TO THE PROGRESS AND TREATMENT OF DISEASE. WITH APPROPRIATE FORMULÆ AND ILLUSTRATIONS.** By SAMUEL FENWICK, M.D., Lecturer on the Principles and Practice of Medicine at the London Hospital, etc. Philadelphia, Lindsay & Blakiston, 1880.

The great and lasting popularity of Dr. Fenwick's excellent little Student's Manual of Medical Diagnosis will cause those members of the profession who are directly engaged in teaching the medical branches to look with warm interest upon the appearance of this new book from the same pen. In the note of dedication to Dr. Marston, the author makes known that his book is an attempt to remedy a defect in medical education, namely, "the

tendency to adopt physical diagnosis as the basis for treatment, to the disparagement of those indications furnished by symptoms, which are of so much importance in leading to a correct method of rational treatment." The arrangement is good, the style clear, crisp, concise, and the treatment brought, in broad general terms, well up to date. It is a book that may be of service to students well grounded in pathology, in preparing for examination or in their first bedside labors; to those who have neglected or indifferently attended to their studies in general and special pathology it will be like a Chinese puzzle, of which the most important part seems hopelessly wanting.

Were I to express my personal feeling about the subdivisions of books for students, I would say that works upon every department of pathology, including diagnosis, may be complete without reference to treatment; and that works upon therapeutics, which have to do with drugs and their actions essentially, require but little of pathology; but that works on medicine, devoted to the consideration of diseases without pathology, and more particularly of treatment without other than passing reference to the actions of drugs or the morbid processes underlying the symptoms, are not of use to the student of average intelligence.

J. C. W.

**STUDENT'S POCKET MEDICAL LEXICON; WITH AN APPENDIX CONTAINING A LIST OF POISONS AND THEIR ANTIDOTES, ETC.** By ELIAS LONGLEY. Philadelphia, Lindsay & Blakiston, 1879, 16mo, pp. 303.

Mr. Longley's little work is intended chiefly for medical students and practitioners who "have not been favored with a liberal education." In order to facilitate the acquirement of a correct pronunciation a phonetic alphabet of twenty letters has been prefixed. Each of these letters, which bear a grotesque resemblance to those of old Gothic manuscript, has a certain sound, and the sound-meaning of these characters once learned, the key to the pronunciation followed throughout the lexicon is mastered. Whether it is worth all this trouble seems to us questionable. The system of pronunciation followed is the Bostonian or "Harvard," which, inasmuch as it is a system, is better than the chaos which usually prevails in medical circles. Occasionally the author makes a bad slip, as where in "eczema" he places the accent on the second syllable instead of the first, a colloquial blunder not infrequent among older physicians, but unauthorized by common usage or by the authority of Webster and Duglison.

**ARCHIVES OF OTOTOLOGY.** Edited in English and German by H. KNAPP, M.D., and PROF. S. MOOS. December, 1879.

We can afford to take no little pride in this number of this valuable journal,—the most practical and, at the same time, the most scholarly papers therein being of American

authorship. Attention is particularly invited to the article by Dr. Swan M. Burnett, on Objective Aural Sounds produced by Voluntary Contraction of the Tubal Muscles, and the one on the Audiphone and Dentaphone, by Dr. Charles S. Turnbull. Dr. Burnett holds, in opposition to the views of other writers, that these sounds are of mucous origin, and are caused by a separation of the moist surfaces of the mouth of the Eustachian tubes after they have been brought together by the contraction of the levator palati. These muscles are held to close more or less completely the pharyngeal orifice,—an opinion which appears to be rapidly gaining ground among the best observers. Dr. Turnbull does good work in acquainting the profession with instruments which are now the popular rage. He inclines to the conclusion that both inventions have been over-estimated, and quotes authority from teachers of deaf-mutes in support of his position.

#### GLEANINGS FROM EXCHANGES.

THE EVIL CONSEQUENCES OF NEGLECTED COLD IN THE HEAD was the title of a paper read by Dr. D. B. St. John Roosa before the State Medical Society of New York (*N. Y. Med. Record*, February 14). It will be found that the most frequent origin of chronic diseases of the lachrymal passages, of the conjunctiva, and of the middle ear, is in a neglected "cold in the head." It is generally conceded that no person in perfect health, except under extraordinary circumstances, takes cold; and yet the majority of mankind have, at some time, suffered from cold in the head. The popular idea that a cold in the head is an insignificant affair is founded on the fact that most of the people recover to such an extent that they are able to go about afterwards and engage in their ordinary avocations without special notice, at the time, of the consequences of the disease which may even then be settled upon them. He believed that very many of the maladies which prevent men and women from reaching the allotted period of threescore and ten have their origin in these colds, and that many serious affections which act as an impediment to the success of their victim are dated from a cold in the head. He then gave a biographical sketch of a child, perhaps feeble when born, or, it may be, in an apparent condition of strength, who became the subject of hypertrophy of the tonsils, swollen naso-pharyngeal mucous membrane, watery eyes, and, worst of all, impaired hearing, perhaps so much impaired that he is not able to hear enough to perform properly the ordinary duties of life. He then described the suffering incident to an acute attack of cold in the head, and spoke of the impossibility of having repeated attacks without producing serious local

changes,—not only local changes, but a permanent impairment of general nutrition. To correct all this, special attention must be paid to *individual hygiene*, and if the evil consequences of neglected cold in the head were to be abolished, the abolition must come through public sentiment properly educated upon this as upon all other sanitary questions. The family practitioner must warn the people everywhere, as opportunity is offered, of the danger in this direction, and of the means by which it is to be avoided.

HINDERANCE TO THE RESPIRATION BY DISEASE IN THE NOSE.—Dr. D. H. Goodwillie, in a paper read before the Canada Medical Association, refers to the deviation of the cartilaginous septum and hypertrophy of the soft parts as the chief causes of nasal obstruction. For the cure of the former condition he showed a set of excising nasal forceps. On one blade of these forceps is a circular, ring-shaped knife, and this cuts against the flat surface of the other blade. Dr. Goodwillie simply applies the forceps and cuts out the deviating part. He reports a number of successful cases.—*Canada Medical Record*, December, 1879.

POISONING BY CAMPHORATED OIL.—Dr. H. B. Hewetson reports (*Lancet*, January 17) the case of a lady who took an ounce of "camphorated oil" in mistake for castor oil. After taking the dose she went to bed and fell asleep, but waked an hour or two later in violent delirium, with vomiting, complaining at intervals of feeling sick and cold and that her cheeks tingled very much. The breathing was labored; pulse 104, firm and good. The extremities did not feel cold to the touch. Hot water and mustard were administered, which made her vomit, and an hour or two later she regained consciousness and gradually recovered.

EFFECTS OF THE CONTINUED USE OF CHLORAL.—The committee of the Clinical Society appointed to ascertain what deleterious effects follow the prolonged and continued use of chloral have recently reported (*Lancet*, January 17). One thousand circulars containing inquiries were sent, to seventy-nine of which answers were received. Twenty-nine answers state that after extensive experience of chloral in long-continued doses, no ill effects have been observed. Ten of these correspondents enjoy the special opportunities for observation afforded by asylum practice. Fourteen answers record cases in which nervous debility, mental enfeeblement, and convulsive seizures appeared to follow the use of chloral, Dr. Maudsley, Dr. Clouston, and Dr. Lindsay expressing themselves as strongly opposed to its employment in insanity. Two answers note some cardiac enfeeblement. Six replies mention digestive disturbance as occasionally following the administration of chloral. Nine correspondents give details of cases in which they observed itching of the skin, papular eruption, with deep

flushing of the face and head, following the taking of stimulants. Two replies indicate the possibility of urinary irritation being produced by chloral. Inquiries addressed to leading apothecaries failed to show any abuse of the liberty of purchasing the drug at will enjoyed by the people in general.

**TREATMENT OF DISEASES OF THE TONSILS.**—Dr. J. H. Douglas (*New York Medical Journal*, January, 1880) says that a point in the treatment is to reach the posterior arch: to effect this he finds that the nozzle of a syringe can be carried back far enough to wash out any concretions of mucus and apply appropriate remedies. He is not in favor of removal of the tonsils. Dr. Beverley Robinson is accustomed to apply to the crypts of the enlarged tonsil a probe covered with nitrate of silver. Dr. Lincoln applies a solution of one part carbolic acid and eight parts compound tincture of iodine.

### MISCELLANY.

**SIMS'S SPECULUM ALWAYS AT HAND.**—The index and middle fingers of the right hand may be used as a perineal retractor in place of the ordinary Sims's speculum. They may be introduced with the patient in Sims's latero-prone position, the operator standing back of the patient, on the side of the table, in exactly the position of the assistant who holds the speculum in the ordinary way. In this manner the cervix and vagina may be exposed almost as well as by the speculum. This method of exposing the parts may be of great use when a speculum is needed and not accessible,—in the application, for instance, of the tampon in sudden hemorrhage, or in consultations at a distance, when, for reasons not anticipated, it becomes necessary to examine the pelvic organs.—*Chicago Medical Gazette*.

**THE Annales de Dermatologie et Syphiligraphie**, which has been published as a bimonthly for the past ten years, has just begun a new series as a quarterly. Dr. Ernest Besnier, the present editor-in-chief, is known as one of the most active and able among French dermatologists, and the first (January) number shows signs of the infusion of fresh blood in its fulness and interest. We give in another place an abstract of a paper by Fourrier on secondary syphilitic epilepsy, published in the current number of the *Annales*.

WE not long since noticed at some length the first volume of the American edition of "Reynolds's System of Medicine," edited by Dr. Henry Hartshorne. The second volume is already upon our table, so that we doubt not that the third will soon follow.

**DR. J. A. LOCKHART CLARKE**, well known for his investigations into the pathology of the nervous system, died a few weeks ago, in the sixty-fourth year of his age.

**PROF. BROCA**, the distinguished anthropologist, has been made a life senator of France.

### NOTES AND QUERIES.

**EDITOR Medical Times:**

DEAR SIR.—In order that the "errors" mentioned in the letter of Dr. Landolt, in your issue of January 31, may be referred to the proper source, I beg leave to state that my translation of his book was made (at his special request) from his second Paris edition, and that he thoroughly revised and corrected the manuscript before it was sent to the printer. The book was set up in strict accordance with this corrected "copy." He, therefore, and not the translator or publisher, is responsible for any *errata* he may see fit to print in addition to those to be found in the book as published.

Yours truly, SWAN M. BURNETT.  
1215 I STREET, WASHINGTON, February 20, 1880.

### DEXTRO-QUININE IN PERIODICAL HEMI-CRANIA.

I WAS called to see a little son of Mr. Charles Lankford, of this city, several months ago, who complained of headache in the right side of his head and through the right eye. His sight was imperfect while suffering from the pain, and there was decided periodicity about the attacks, being much worse every other day; his nose would bleed very often when he was troubled with the headache. From the history of the case I regarded this as a neuralgic hemicrania of malarial origin. I accordingly prescribed quinine, iron, and hyoscyamus; I found no improvement, but an increase of the head trouble, with more hemorrhage from the nose. I then put him upon quinine alone; his head continued to be congested, and nose would bleed frequently. I then discontinued the quinine and put him upon ergot and bromide potassium. This seemed to check the hemorrhage to some extent, but the headache and imperfect vision remained. I then discarded all remedies and put him upon three-grain doses of dextro-quinine (K. & M.), three times a day. I am pleased to report that after the second day's use of dextro-quinine the hemicrania was entirely relieved, nor has it since returned; the eyesight became perfect, the bleeding from the nose has occurred but once since.

This boy could not take quinine without producing congestion and, necessarily, hemorrhage. Dextro-quinine obviated the difficulty and cured my patient.

C. A. BRYCE, M.D.,  
Editor of the *Southern Clinic*, Richmond, Va.

### OFFICIAL LIST

#### OF CHANGES OF STATIONS AND DUTIES OF OFFICERS OF THE MEDICAL DEPARTMENT U.S. ARMY FROM FEBRUARY 22 TO MARCH 6, 1880.

**COOPER, GEORGE E., LIEUTENANT-COLONEL AND ASSISTANT MEDICAL PURVEYOR.**—To be relieved temporarily in the charge of the Medical Purveying Depot in San Francisco, Cal., by Captain H. Johnson, Medical Store-keeper. S. O. 48, A. G. O., March 3, 1880.

**HEGER, A., MAJOR AND SURGEON.**—Having reported in compliance with orders from the A. G. O., is assigned to temporary duty at Department Headquarters. S. O. 42, Department of Texas, February 26, 1880.

**BYRNE, C. C., MAJOR AND SURGEON.**—Granted leave of absence for twenty days. S. O. 2, Department of Dakota, February 18, 1880.

**MUNN, C. E., CAPTAIN AND ASSISTANT-SURGEON.**—Granted leave of absence for one month. S. O. 44, Department of the Missouri, February 27, 1880.

**LORING, L. Y., CAPTAIN AND ASSISTANT-SURGEON.**—When relieved by Assistant-Surgeon D. M. Appel, to proceed to Fort Dodge, Kansas, and report for duty at that post. S. O. 39, Department of the Missouri, February 20, 1880.

**BROWN, P. R., CAPTAIN AND ASSISTANT-SURGEON.**—To report in person to the President of the Medical Examining Board for examination for promotion, and, on completion of the examination, to the Commanding General, Department of the East, for assignment to duty. S. O. 47, A. G. O., March 2, 1880.

**FINLEY, J. A., CAPTAIN AND ASSISTANT-SURGEON.**—To report in person to the President of the Medical Examining Board, in session in New York City, for examination for promotion, and, upon completion of the examination, to the Commanding General, Department of the East, for assignment to duty. S. O. 47, c. s., A. G. O.

**APPEL, D. M., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.**—Assigned to duty at Fort Supply, Indian Territory, relieving Assistant-Surgeon Loring. S. O. 39, c. s., Department of the Missouri.